Preventing Catheter-Related Bloodstream Infections

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The use of non-tunneled central venous catheters is increasing among patients in all settings including intensive care units as they enhance medical care. However, catheters and their placement provide an opportunity for bacteria to enter the bloodstream causing infection, or a catheter-associated bloodstream infection (CABSI). These infections contribute significantly to patient morbidity and mortality and are costly to healthcare systems. However, they are preventable. While evidence based guidelines to prevent these infections exist, they are complicated and have been difficult to implement in the healthcare setting. The salient elements have not been systematically translated into a format so that 1) healthcare workers know what they need to do, 2) institutions know how to facilitate the behavior with supplies and 3) the outcomes are communicated to the healthcare workers. The science behind a simple ''bundle of non-technologic but infection prevention and control interventions'' which can be used in resource limited and rich settings includes the use of 1) hand hygiene prior to placing the line, 2) a chlorhexidine based skin preparation prior at the insertion site of the line, 3) the subclavian vein site over other sites for line placement whenever medical feasible, 4) full barrier drapping of the patient during the procedure, and 5) daily attempts to remove the line. In addition, appropriate line care and dressing use once the insertion is completed were taught. In this paper we will use the experience at an institution and in several other settings to demonstrate how to operationalize such an intervention. We will look at the impact on CABSI rates in adult and pediatric settings.

The intervention can be put in context of a behavioral modification model proposed by Rodgers et al. In this model elements of the intervention include factors that enhance knowledge and facilitate behavior and attitude change. We will review enabling factors primarily from the institution that will improve behavior and we will look at techniques to reinforce behavior.

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Relevant Vaccines for Health Care Workers

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Immunization among HCWs has two purposes, both which allow for better prevention. Immunization's first purpose is to protect HCWs from several infectious diseases they may be exposed to through professional activities. A second purpose is to minimize the odds of infecting the patients they are taking care of. It should be clear that both objectives are extremely important and should be a priority to any health system. Another consideration is the importance of establishing this preventive measure in low-income regions where

The landscape of public health has plenty of examples of neglected situations. In developing regions the protection of HCWs has been ignored in the most flagrant circumstances. There is a lack of regulations to establish vaccination programs and the protection needed for accidental injuries.

Any health care service or system should establish an employee health program in collaboration with the infection control department that includes a vaccination schedule for HCWs. It is essential that vaccines for Hepatitis B, Influenza (yearly), Measles, Mumps, Rubella, Tetanus and Diphteria are administered. According to regional epidemiological circumstances other vaccines may be considered, such as BCG, Yellow Fever, Varicella-zoster, Hepatitis A, Cholera and Influenza A H5 N1.

Surprisingly, HCWs are reluctant to accept vaccination programs as is shown by multiple reports for very low rates of acceptance. This is a challenge every program needs to address, and strategies to improve acceptance should be evaluated. Establishing a wide and continuous vaccination program should be a high priority project in any health care system.

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Prevention of Surgical Infections

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Surgical site infections (SSIs) are the second most common cause of nosocomial infections resulting in considerable increase in morbidity and mortality. The U.S. Centers for Disease Control and Prevention (CDC) estimate that 500,000 SSIs occur annually in the United States. Patients who develop SSIs are up to 60% more likely to require intensive care, are up to 5 times more likely readmitted for complications, and twice as likely to die as patients without an SSI. In addition, SSIs increase health care costs by $ 5—10,000 and double mortality after procedures. Dozens of risk factors have been identified that partly predict the incidence of SSIs. The can be basically classified in risk factors by the underlying diseases of the patient, risk factors of the intervention, risk factors by the surgical team and management, and environmental factors. Multiple strategies have been developed to decrease the incidence of SSIs, but many are given by the patient such as age and underlying diseases. The CDC has developed key compounds that increase the risk of SSIs: Surgery exceeding the T-time, level of contamination of surgery (contaminated or dirty) and ASA score >3. In addition, Wenzel RP and colleagues already demonstrated in the seventies that surgical volume is associated with SSIs. Established risk factors are ongoing infections other than the surgical site, insufficient heating of the patient during surgery, failure to give appropriate oxygen supply and failure to give appropriate, timely antimicrobial prophylaxis. The latter is likely the most important, but very difficult to introduce in a busy operating theatre. Common infection control practices that are poorly supported by clinical trials are laminar air flow for implant surgery, hand antisepsis